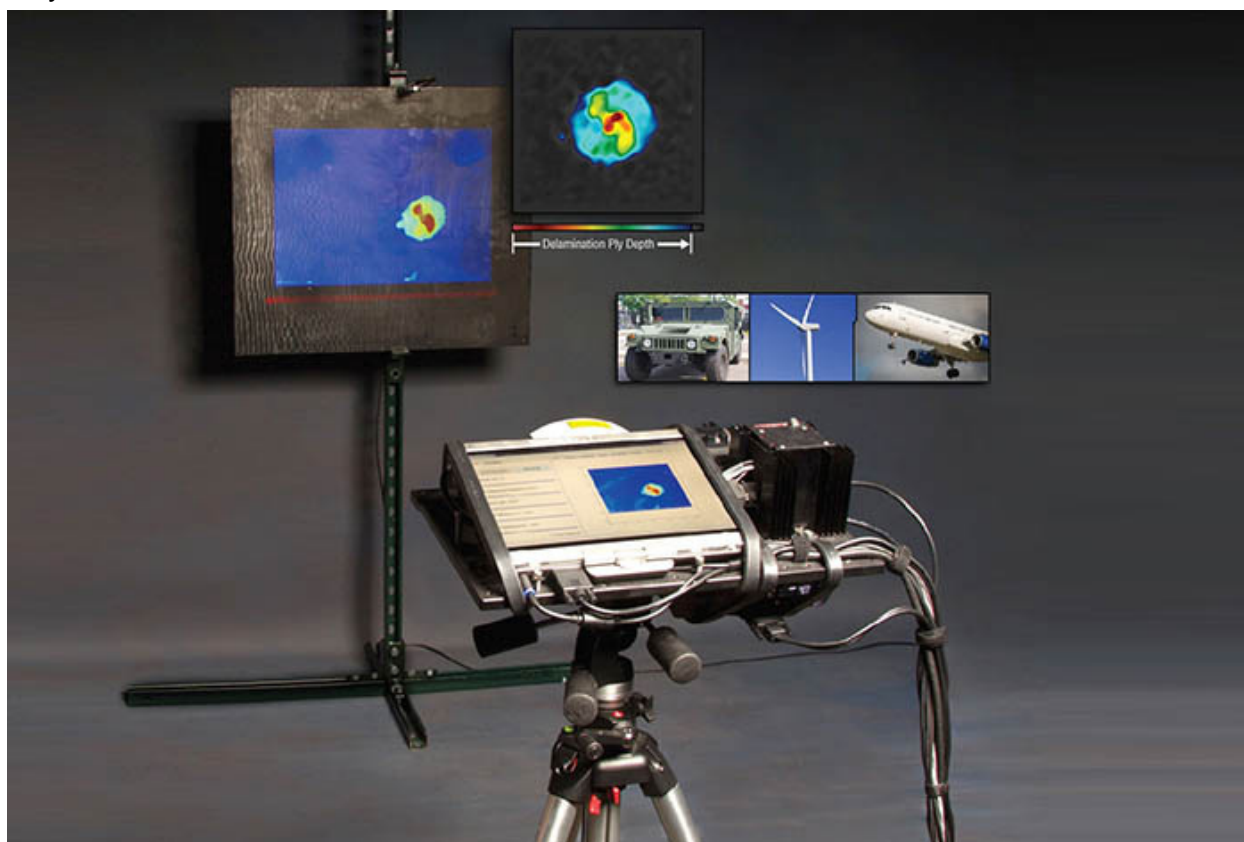


Los Alamos devices capture ‘Oscars of Invention’ awards

July 3, 2014



Safire oil-well measurement and AWS laser-based spectrometer for materials inspection capture R&D Magazine’s “R&D 100s”

LOS ALAMOS, N.M., July 11, 2014—R&D Magazine today announced the winners of its annual “R&D 100” competition, and two technologies from Los Alamos National Laboratory and its partners are among the honored innovations.

“These awards recognize the tremendous value of our National Labs,” said Energy Secretary Ernest Moniz. “Research and development at the National Labs continues to help our nation address its energy challenges and pursue the scientific and technological innovations necessary to remain globally competitive.”

"I am pleased that our Laboratory has the outstanding talent to be consistently recognized by these prestigious awards," said Los Alamos National Laboratory Director Charles McMillan.

"These types of awards are an indication of the breadth of scientific capability we exercise for our national security mission. I congratulate the recipients and their partners for their work, not only on these innovative projects, but also for advancements made in their fields that will foster next-generation science and technology excellence."

And the Winners Are. . .

A multiphase flow meter, Safire provides noninvasive, continuous and accurate estimates of oil production for wells. It enables the inexpensive measurement of varying oil, water and gas flows from all types of wells. This allows the oil industry to safely access areas that are environmentally sensitive, to increase oil recovery, and to monitor any fluid or fluid mixture, not just crude-oil or water systems.

Safire is based on SFAI, swept frequency acoustic interferometry, and it uses frequency-chirp signal propagation (sideband ultrasonic frequency) through a multiphase medium to extract frequency dependent physical properties of the well's contents.

Simple to use, Safire enables continuous measurements in fast-changing oil wells. Safire is a collaborative project of Los Alamos National Laboratory, General Electric Company, and Chevron ETC.

LANL inventors for Safire are Dipen Sinha and Anirban Chaudhuri of the Materials Synthesis and Integrated Devices Group.

Acoustic Wavenumber Spectroscopy (AWS) generates images of hidden structural properties and/or defects. The spectrometer is a revolutionary laser-based, nondestructive inspection system, working 30 times faster than the leading competitor.

AWS applications include maintenance of military assets, commercial aircraft and energy-production facilities such as wind turbines. It was developed and proposed by Eric Flynn, Gregory Jarmer and Charles Farrar of Los Alamos National Laboratory.

The device generates such images by taking fast, full-field measurements of a structure's steady-state response to periodic ultrasonic excitation. AWS's novelty is in its ability to extract local wave propagation properties by using continuous, periodic ultrasonic excitation and continuous-scan sensing, which enables noninvasive, high-rate and high-resolution ultrasonic imaging.

A History of Success

Since 1978 when it first competed, Los Alamos has won 131 of the prestigious R&D100 awards that celebrate the top 100 proven technological advances of the year as judged by R&D Magazine. These technologies include innovative new materials, chemistry breakthroughs, biomedical products, consumer items, testing equipment, and high-energy physics.

In the years since 1995, winning innovations have returned more than \$45 million in funding to Los Alamos in the form of Cooperative Research and Development Agreements, Work for Others, User Facility Agreements and licenses. An estimated 80 patent awards have been associated with winners with many more patents pending. Some 25 percent of LANL's commercial licenses and 35 percent of noncommercial licenses can be attributed to R&D 100 winners.

Caption for image below: Safire meters perform continuous measurements.

Los Alamos National Laboratory

www.lanl.gov

(505) 667-7000

Los Alamos, NM

Operated by Los Alamos National Security, LLC for the Department of Energy's NNSA

